

**ABSTRACT**

The invention relates to a medical X-ray device 5 arrangement for producing three-dimensional information of an object 4 in a medical X-ray imaging.

The medical X-ray device 5 arrangement comprises:

- an X-ray source 2 for X-radiating the object from at least two different directions
- a detector 6 for detecting the X-radiation to form projection data of the object 4
- means 15 for modelling the object 4 mathematically utilizing the projection data
- to solve the imaging geometry and/or the motion of the object, where the solving concerns either some or all parts of the imaging geometry and/or the motion of the object.
- and the medical X-ray device 5 arrangement comprises means 15 for utilizing said projection data and said mathematical modelling of the object in Bayesian inversion based on Bayes' formula

$$p(x, \theta | m) = \frac{p_{pr}(\theta) p_{pr}(x) p(m | x, \theta)}{p(m)}$$

to produce three-dimensional information of the object.

(Fig. 7)